

# Introducing Machine Learning in the Creative Communities: A Case Study Workshop

**Matteo Loglio**

oio.studio  
matteo@oio.studio

**Serena Cangiano**

SUPSI Maind  
serena.cangiano@supsi.ch

## Abstract

Recent developments in machine learning have made it one of the most popular fields of computer science of the last few years. Mostly adopted by engineers and data scientists, it recently started to open up to the creative community. This paper presents the journey through an experimental workshop, where a group of designers and artists explored new ways of using machine learning as a tool for creative projects, outside of the purely technological domain.

## Machine Learning for Creatives: a workshop at MuDA Zurich

In July 2018, the Master of Advanced Studies in Interaction Design, in collaboration with MuDA Museum of Digital Arts, promoted the organization of a three-day project-based workshop on machine learning. Under the direction of Matteo Loglio, tutor and teacher of the course, the workshop aimed to experiment with the opportunity to involve a larger community of creators, from artists to designers and amateurs, and to validate the interest of the creative community in such topic.

The fundamental idea of the workshop was to provide simple tools that could enable everyone, even people with basic technical skills, to include machine learning in a creative process and to open up this technology to unpredictable users and applications. If the conceptual aspect of the workshop was mainly theoretical, the hands-on part was riskier. The available prototyping tools are still in their infancy, as was learned from other experiments held by the authors of this paper. [1] There was a high chance that participants would struggle with the practice. To facilitate this process, part of the

workshop was to develop a creative brief, where participants with different levels of technical and creative abilities could join forces and participate in a collaborative project.

## Authentications: The Brief

The focus of the creative brief assigned to the participants was to re-imagine the authentication process, using machine learning prototyping tools. The emphasis of the task was on the obsolescence of the password as an interface, and how it could be replaced with more modern solutions. After several decades, while the rest of our digital rituals evolved, in the domain of the interface, the password still remains unchallenged.

Machine learning seemed like the perfect candidate for the brief: the most popular applications are in fact centered on the recognition of unique features and patterns. Passwords are just one of many examples of how this technology could radically transform not only computer science, but also the interaction design practice. For this reason, the brief challenge focused on the following question: what if we could design alternative ways to authenticate users, using modern hardware and software, like machine learning?

## The results

The workshop participants collaborated in groups on the development of eleven functioning prototypes of authentication applications using machine learning.

In the project “Divided We Fall”, for example, passwords are re-designed to be shared across communities, or groups of people. In order to unlock the screen, users have to combine their bodies in a secret combination of postures.

When the user is not authenticated, the application displays an incomplete message that becomes readable only when more participants join the scene.



Fig 1. Divided We Fall, 2018, Emanuele Bonetti, Ruggero Castagnola, ml5js with Posenet, photo Matteo Loglio.

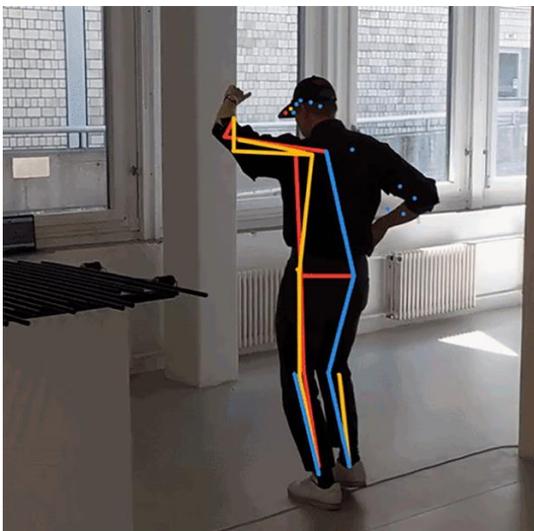


Fig 2. Drake Gate, 2018, Sam Seemann, Ivan Iovine, ml5js with Wekinator, photo Matteo Loglio.

In the “Drake Gate” project, the authentication system unlocks the computer only when the user performs a specific sequence of moves of the famous hip-hop singer, Drake.

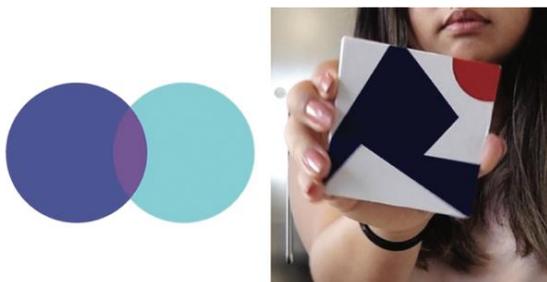


Fig 3. Glyphword, 2018, Davide Pedone, Matteo Sacchi, ml5.js library with the Feature Regression Extraction model, photo Matteo Loglio.

Also worth mentioning is the project “Glyphword”, where the digital password is replaced by a physical one, in this case a custom printed token. To be granted access, the user has to perform a specific rotation of the physical key in front of the camera, mimicking the actual key-lock interaction.

### Lesson learned

The conceptual challenge of the workshop was to find a balance in explaining just enough concepts to make the subject interesting and understandable, but also to avoid technicalities. Furthermore, we learned how accessible machine learning software is still in the early days. [2][3][4] The workshop enabled participants to understand both the processes and technical constraints behind the opening of machine learning knowledge to designers and artists through a project-based learning journey.

### References

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2. Pj5, [www.p5js.org](http://www.p5js.org).
3. Posenet, [www.github.com/tensorflow/tfjs-models/tree/master/posenet](https://github.com/tensorflow/tfjs-models/tree/master/posenet).
4. Wekinator, [www.wekinator.org](http://www.wekinator.org).

### Biographies

Matteo Loglio is a designer and creative technologist and director of oio.studio. He co-founded the ed-tech startup Primo Toys and his work was exhibited at the MoMA NY the MIT and the V&A.

Serena Cangiano is an interaction designer and researcher at SUPSI Lugano and coordinator of the Master in Interaction design and programs on tech education for designers.